SNC2D Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Unit 4 Review – Climate Change**

**Chapter 7 – Earth’s Climate System (7.1, 7.2, 7.3)**

*I know how to use & distinguish between the following terms:*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| atmosphere | climate | greenhouse effect | hydrosphere | albedo |
| tectonic plate | anthropogenic | climatograph | biome | ecozone |
| Köppen classification system | | ecoregion | global warming | desertification |
| deforestation |  |  |  |  |

*I know how to…*

\_\_ distinguish between weather and climate

\_\_ describe how the Sun affects the climate on Earth (including changes in solar activity, the orbit of

the Earth, the tilt of the Earth’s axis of rotation, latitude)

\_\_ describe how eccentricity, tilt, and wobble cause fluctuations in the effect of the Sun on Earth’s

climate (Milankovic’s calculations)

\_\_ describe how the atmosphere affects climate (including greenhouse effect, wind causing

movement of thermal energy, precipitation, and ocean currents)

\_\_ describe the effects of the hydrosphere on climate (including heat reservoirs, albedo)

\_\_ describe the effects of movement of tectonic plates on climate (including volcanic eruptions)

\_\_ describe human activities that affect climate

\_\_ name & distinguish between the 3 climate zones

\_\_ interpret information in a climatograph

\_\_ describe the factors used to classify climates in the Köppen climate classification system

\_\_ describe the abiotic & biotic components used to classify regions into biomes

\_\_ identify the one type of biome that is not found in Canada

\_\_ distinguish between an ecozone & an ecoregion

\_\_ describe & give examples of indicators of climate change (e.g., global warming, changes in

glacial & polar ice, rising sea level & ocean acidity, effects on health, changing wind & precipitation

patterns) as well as effects of climate change on living organisms including humans

**Chapter 8 – Dynamics of Climate Change (8.1 & 8.2 only)**

*I know how to use & distinguish between the following terms:*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| system | feedback loop | electromagnetic radiation | | energy budget |
| thermohaline circulation | | concentration | parts per million (ppm) | |
| greenhouse gases | ozone | chlorofluorocarbons (CFCs) | |  |
| anthropogenic greenhouse effect | | global warming potential (GWP) | |  |

*I know how to…*

\_\_ distinguish between an open system & a closed system, and give examples of each

\_\_ give examples of positive and negative feedback loops in Earth’s climate system

\_\_ describe how thermal energy from the Sun is transferred through radiation, conduction, and

convection in Earth’s climate system

\_\_ describe how wind, heat, and salinity contribute to thermohaline circulation, and how global

warming may disrupt this circulation pattern (e.g., increased melting decreases salinity in polar

regions making water less dense, etc.)

\_\_ explain the difference between El Niño and La Niña, and describe how they affect weather in

North America

\_\_ describe how reflection and absorption of solar radiation keep Earth’s “energy budget” balanced,

and give examples of how global warming can cause an imbalance in the budget (e.g., melting of

polar ice causes decreased albedo and less reflection of solar radiation by the surfacr of Earth,

etc.)

\_\_ distinguish between a greenhouse gas and gases that do not contribute to the greenhouse effect

\_\_ distinguish between sources (both natural and anthropogenic) and sinks of greenhouse gases

\_\_ describe ways to reduce the greenhouse effects of water vapour, carbon dioxide, methane, nitrous

oxide, ground-level ozone, and halocarbons

\_\_ list the factors that affect a substance’s global warming potential (GWP)

\_\_ describe individual actions that can lead to a reduction in greenhouse gas production

**Chapter 9 – Addressing Climate Change (9.1 & 9.3 only)**

*I know how to use & distinguish between the following terms:*

|  |  |  |  |
| --- | --- | --- | --- |
| paleoclimatologists | ice core | isotope | fossil |
| sedimentary rock | bias | carbon footprint | carbon offset |

*I know how to…*

\_\_ describe what kind of information tree rings can reveal about past climates (e.g., thick vs. thin

rings, dark vs. light rings, etc.)

\_\_ describe what can be determined about past climates from looking at dissolved & particulate

matter, physical characteristics, and composition of trapped air in bubbles, and the compostion of

water in ice cores

\_\_ describe what sediment cores & fossils can reveal about past climates

\_\_ choose reliable sources of information on climate change, and to detect the bias in different

sources

\_\_ look at my own lifestyle and identify activities that are contributing to climate change (i.e. to

estimate my carbon footprint) as well as determine strategies to reduce my impact

\_\_ describe international initiatives to combat climate change (e.g., the IPCC, the Kyoto Protocol,

etc.) as well as local ones (e.g., Energy Star symbol, Ontario Climate Change Action Plan, etc.)

\_\_ distinguish between cap-and-trade systems and carbon-tax systems

\_\_ suggest ways to reduce greenhouse gas emissions by using alternative sources of energy